Federal Energy Management Program

FEMP Designated Product:
Residential Dishwashers

Leading by example, saving energy and taxpayer dollars in federal facilities

Purchasing Specifications for Energy-Efficient Products

Legal Authorities

Federal agencies are required by the Energy Policy Act of 2005 (P.L. 109-58) and Federal Acquisition Regulations (FAR) Subpart 23.2 to specify and buy ENERGY STAR®-qualified products or, in categories with no ENERGY STAR label, FEMP-designated products which are among the highest 25 percent of equivalent products for energy efficiency.

Performance Requirements for Federal Purchases

Dishwasher Type	Energy Factor[a]	Annual Energy Use[b]
Standard[c]	0.58 or greater	380 kWh or less

a) Energy Factor is the inverse of the power consumption (in kWh) for one full wash cycle.

b) Based on annual standby energy use plus the active energy use from 215 wash cycles, where one cycle is one normal operation with a fully loaded machine.

c) This specification does not cover compact models.

Buying Energy-Efficient Residential Dishwashers

When buying residential dishwashers directly from commercial sources, select products that are ENERGY STAR-qualified (see *For More Information*) and also do not exeed the annual energy use shown in the *Performance Requirements* table. Most manufacturers display the ENERGY STAR label on complying models. For dishwashers that do not display the ENERGY STAR, check the annual energy use listed on the yellow EnergyGuide label for products that meet this *Specification*.

Performance requirements apply to all forms of procurements, including: guide and project specifications; construction, renovation, repair, maintenance and energy service contracts, lease agreements and solicitations for offers. Energy performance requirements should be included in all evaluations of solicitation responses. Model language to assist agencies with incorporating these performance requirements into their procurement documents is available at http://www.eere.energy.gov/femp/procurement/eep_modellang.cfm.

The federal supply sources for residential dishwashers are the General Services Administration (GSA) and Defense Logistics Agency (DLA). GSA sells dishwashers through its Multiple Awards Schedules program and on-line shopping network, *GSA Advantage!* DLA offers them through the Defense Supply Center Philadelphia and online through DoD *EMall*. Note that not all dishwashers sold by GSA and DLA are ENERGY STAR-qualified and some products that do qualify may not be indicated as such. When buying dishwashers through these sources, check the models you are considering against the list of qualified products on the ENERGY STAR web site to assure that they meet this *Specification*.

Agencies can claim an exception to these requirements through a written finding that no ENERGY STAR-qualified or FEMP-designated product is available to meet the functional requirements, or that no such product is life-cycle cost-effective for the specific application.

Low Standby Power

Federal agencies are required to purchase products that use one watt of power or less while in standby mode. Features such as soft touch controls and digital displays use power even when the dishwashers are not working. For some products, FEMP sets a separate standby level. However, since the measurement of annual energy use includes both standby and wash-cycle energy, FEMP requires that dishwashers have an annual energy use of 380 kWh or less in addition to being ENERGY STAR-qualified.

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User Tips

Dishwashers require the hottest water of all household uses, typically 135 to 140º F. However, these products are usually equipped with booster heaters to raise incoming water temperature by 15 to 20º F. Setting the water heater between 120 and 125º F and turning the dishwasher's booster on will provide sufficiently hot water while saving energy and also reducing the chances for scalding.

Cost-Effectiveness Example			
Performance	**Base Model[a]**	**Required**	**Best Available[b]**
Energy Factor (EF)	0.46	0.58	1.11
Annual Energy Use	493 kWh	380 kWh	194 kWh
With Electric Water Heating			
Annual Energy Cost	$30	$23	$12
Lifetime Energy Cost[b]	$285	$220	$110
Lifetime Energy Cost Savings	-	**$65**	**$175**
With Gas Water Heating			
Annual Energy Cost	$20	$15	$8
Lifetime Energy Cost[c]	$195	$135	$65
Lifetime Energy Cost Savings	-	**$60**	**$130**

a) The efficiency (EF) of the Base Model is the minimum allowed by US DOE appliance standards.

b) More efficient products may have been introduced to the market since this specification was published. Information on the Best Available model was obtained from the ENERGY STAR dishwasher products list.

c) Lifetime Energy Cost is the sum of the discounted value of annual energy costs based on average usage and an assumed dishwasher life of 13 years. Future energy price trends and a discount rate of 3.0% are based on federal guidelines (effective from April 2005 to March 2006).

Cost-Effectiveness Assumptions

In the example above, the *Base Model* is a standard dishwasher with an EF of 0.46 and standby power of 3 watts. The *Required* model has an EF of 0.58 and standby power of 1 watt while the *Best Available* has an EF of 1.11 and uses no standby power. Annual energy use in this example is based on the standard DOE test procedure. The assumed prices for electricity and natural gas are 6¢ per kWh and 60¢ per therm, the average at federal facilities in the US.

Using the Cost-Effectiveness Table

With electric water heating, the *Required* model is cost-effective if its purchase price is no more than $65 above that of the *Base Model*. The *Best Available* dishwasher is cost-effective if its purchase price is no more than $175 above the *Base Model*.

If using gas water heating, the Required model is cost-effective if its purchase price is no more than $60 above the price of the Base Model. The Best Available dishwasher is cost-effective if its purchae price is no more than $130 above the price of the Base Model.

What if my Utility Prices are Different?

ENERGY STAR has an EXCEL-based cost calculator for dishwashers on its Web site. Go to http://www.energystar.gov/index.cfm?c=dishwash.pr_dishwashers, and click on Savings Calculator - Dishwashers. Select the water heater type and input the rates for electricity, natural gas and water at your facility. The output section will automatically display results that more accurately reflect your utility costs.

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For More Information:

EERE Information Center
1-877-EERE-INF or 1-877-337-3463
www.eere.energy.gov/femp/procurement/

General Services Administration
(816) 926-6760
www.fss.gsa.gov/
www.gsaadvantage.gov/

Defense Logistics Agency
www.dla.mil/
www.emall.dla.mil/

Defense Supply Center Philadelphia
(800) DLA-BULB or (215) 737-7950
www.dscp.dla.mil/

American Council for and Energy Efficient Economy (ACEEE) publishes the *Consumer's Guide to Home Energy Savings* which contains a chapter on dishwashing and list of energy-efficient products. This guide is available from ACEEE at:
(202) 429-0063
www.aceee.org/

Federal Trade Commission lists the annual energy use of dishwashers and other appliance data on its web site at:
www.ftc.gov/energy/

Lawrence Berkeley National Laboratory provided market research and life cycle cost analysis in support of this energy-efficiency purchasing specification.
(202) 646-7950

A Strong Energy Portfolio for a Strong America

Energy efficiency and clean, renewable energy will mean a stronger economy, cleaner environment, and greater energy independence for America. Working with a wide array of state, community, industry, and university partners, the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy invests in a diverse portfolio of energy technologies.

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